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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/522,692

07/29/2005

Lyder Moen

2116

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26753

7590

01/07/2009

ANDRUS, SCEALES, STARKE & SAWALL, LLP  
100 EAST WISCONSIN AVENUE, SUITE 1100  
MILWAUKEE, WI 53202

EXAMINER

TSAI, CAROL S W

ART UNIT

PAPER NUMBER

2857

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/522,692	<b>Applicant(s)</b> MOEN, LYDER	
	<b>Examiner</b> CAROL S. TSAI	<b>Art Unit</b> 2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 5-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 5-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 8 recites the limitation "fluctuations in the blade pass frequency of the compressor" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim, since "fluctuations in the blade pass frequency of the compressor" was not described previously.
4. Claim 16 recites the limitation "fluctuations in the blade pass frequency of the processor" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim, since "fluctuations in the blade pass frequency of the compressor" was not described previously.

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claims 5-16 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 6,532,433 to Bharadwaj et al.

7. With respect to claims 5 and 9, Bharadwaj et al. disclose a system configured to estimate the operable life of turbine blades in a compressor, the system comprising: a compressor (compressor 14 shown on Fig. 2) having a plurality of turbine blades (turbine blades 22 see col. 5, line 32) that are housed in a casing (casing 26 shown on Fig. 1), wherein certain movements of the turbine blades generate pressure waves that propagate to the casing and thereby cause the casing to vibrate (see col. 5, lines 39-43); a sensor (sensor 30 shown on Fig. 2) coupled to the casing, wherein the sensor is configured to sense vibrations in the casing and to generate a measurement signal representative of the sensed vibrations (see col. 5, lines 40-44); and a processor (signal processing system with correlation integral 70 shown on Fig. 5) coupled to the sensor, wherein the processor is configured to receive the measurement signal from the sensor (see col. 5, lines 40-60) and to correlate the measurement signal to a frequency value representative of the vibration frequency of the casing (see col. 6, line 65 to col. 7, line 3); wherein the processor is further configured to identify when the turbine blades are subjected to a condition of rotating stall by determining when said frequency value is outside of a known range of frequency values for the casing during normal turbine blade operation (see Abstract, lines 7-8; col. 2, lines 42-46; col. 3, lines 27-29 and lines 53-54; col. 4, lines 8-10 and lines 22-23 ; and col. 7, lines 4-5); wherein the processor is further configured to communicate an identified condition of rotating stall to a lifetime estimation tool configured to estimate the operable life of turbine blades in the compressor (see

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Abstract, lines 1-7; col. 1, lines 8-13; col. 3, lines 47-59; col. 4, lines 5-8); and wherein the lifetime estimation tool is configured to estimate the operable life of turbine blades in the compressor based at least in part on the identified condition of rotating stall (see Abstract, lines 8-12; col. 2, lines 46-51; col. 3, lines 29-34 and lines 55-59; col. 4, lines 10-11 and lines 23-25; and col. 7, lines 5-7).

8. As to claims 6 and 12, Bharadwaj et al. also disclose comparing the sensed vibrations to a known correlation between casing vibrations and casing frequency values (see Abstract, lines 7-8; col. 2, lines 42-46; col. 3, lines 27-29 and lines 53-54; col. 4, lines 8-10 and lines 22-23 ; and col. 7, lines 4-5).

9. As to claims 7 and 13, Bharadwaj et al. also disclose utilizing Fast Fourier Transform (see col. 4, lines 13-17).

10. As to claims 8 and 16, as best understood, Bharadwaj et al. also disclose fluctuations in the blade pass frequency of the compressor being accounted for during derivation of the known range of frequency values of the casing (see col. 3, lines 5-11).

11. As to claims 10 and 11, Bharadwaj et al. also disclose a display, wherein the processor is configured to display the frequency values of the casing on the display (see col. 6, lines 50-61).

12. As to claim 14, Bharadwaj et al. do not disclose expressly the sensor being an accelerometer.

13. It is, however, considered inherent that Bharadwaj et al.'s sensor being an accelerometer (see col. 7, lines 56-63), because such element is known to be necessary in order that the acceleration of a gas turbine engine can be detected.

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14. As to claim 15, Bharadwaj et al. also disclose the sensor being mounted on an outside surface of the casing with respect to the turbine blades (see col. 5, lines 40-44).

### ***Response to Arguments***

15. Applicant's arguments with respect to claims 5-16 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

***Contact Information***

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAROL S. TSAI whose telephone number is (571)272-2224. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ramos-Feliciano S. Eliseo can be reached on (571) 272-7925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 4, 2009  
Art Unit 2857

/Carol S Tsai/  
Primary Examiner, Art Unit 2857